

Work Order ID 80609

Thursday, February 23, 2012 3:03:22 PM

DELUX

80609

[Signature] Page 1

Item ID: D350-636-015

Accept

N9000040100

Setup Start *NS1*

Revision ID:

Stop *NS2*

Item Name: Skidtube STD w/ Training Wearplates, LH

Start Date: 2/24/2012 Start Qty: 1.00 *1*

Cust Item ID:

Required Date: 3/14/2012 Req'd Qty: 1.00 *1*

Customer:

Reference:

Approvals: Process Plan: *MF*

Date: 2-02-23 Tooling:

Date:

Run Start *NR1*

QC:

Date: SPC (Y/N):

Date:

Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

Draw Nbr	Revision Nbr
----------	--------------

D3492	C
-------	---

D4168	A
-------	---

IIN-D350-636	I
--------------	---

100	0.00
-----	------

100

DOCUMENT CONTROL

DC	0.00
----	------

Document Control

Memo

Photocopy blue file and type labels per PPP D350-636-015 CHG 002

N/A
or chg 3
per ECN 12-312
(04184-011 Rev B or Rev C)

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

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Reference:

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Tooling:

Date:

Run Start ***NR1***

QC:

Date:

SPC (Y/N):

Date:

Stop ***NR2***Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

110

0.00

110

Skidtubes

0.00

Skidtubes

Memo

Skidtubes

1- Pick D2600-3 Bent

2- Deburr FWD and AFT ends, remove bending marks. Scribe batch# inside AFT end per dwg D4168

3- Drill pilot holes for blade fitting bolt holes using DT8983. Open to 0.500", deburr, section H-H

4- Locate DT8330 off of blade fitting bolt holes and drill pilot holes for blade fitting, section H-H

5- Drill fwd step holes using DT9616. Ensure proper positioning. All holes as per dwg D4168, detail A

6- Drill pilot holes as per Dwg D4168 sheet 4 (D4168-1 details). Drill using drill Jig DT8150 & DT8863A for first side only DT8863B for second side (detail B)

7- Clecko DT8863B on second side of tube and drill pilot holes for detail B.
SECOND SIDE

8- Drill most FWD wearplate hole using DT9678 locating off of 66.54" hole.

9- Open up holes of Detail A to 0.297" (total of 2 holes per side) and .201" (total of 1 hole per side) open holes of detail D section H-H to 0.500" as per dwg D4168

10- Weld D2744 Cap as per Dwg D4168 and QSI 004. Fill grooves in bend left from bending as per QSI 004

12/02/27

12/23/05

BE 12/03/06

Dart Aerospace Ltd

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Run Start ***NR1***

QC:

Date:

SPC (Y/N):

Date:

Stop ***NR2***Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
StampA/R Aluminum Rod batch: M120164BE 12/03/01

11-Grind welds flush as per Dwg D4168

7/20 12-03-05

120

120

QC

Quality Control

QC10- Inspect visual per QSI004- ground welds

0.00

S. 12/03/15

Memo

0.00

130

130

QC

Quality Control

QC5- Inspect part completeness to step on W/O

0.00

S. 12/03/15

Memo

0.00

W/O:		WORK ORDER CHANGES					
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Tooling: Date:

Run Start ***NR1***

QC: Date:

SPC (Y/N): Date:

Stop ***NR2***Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run HoursTool ID Tool # Plan Accept Reject Reject Insp.
Code Qty Qty Number Stamp

140

Chemical Conversion Coat per QS1005 4.1

0.00

140

HandFinish

Memo

0.00

Hand Finishing

DC 12/03/15

150

QC3- Inspect Part Finish

0.00

150

QC

Memo

0.00

Quality Control

① SMO 12-03-15

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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Required Date: 3/14/2012 Req'd Qty: 1.00

1

Customer:

Reference:

Approvals: Process Plan:

Date:

Tooling:

Date:

Run Start *NR1*

QC:

Date:

SPC (Y/N):

Date:

Stop *NR2*

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID Tool # Plan Code Accept Qty Reject Qty Reject Number Insp. Stamp

160

0.00

160

Skidtubes

Skidtubes

Memo

0.00

1-Open up holes of Detail C and ground handling section AL-AL to 0.625" (total of 8 holes per side) as per dwg D4168.

2-Open up holes of Detail B to 0.750" (total of 4 holes per side) as per dwg D4168.

3- Open float hole to 0.500" (4 per side) section AJ-AJ

Open wearplate holes to size as per dwg (4 holes per sides), section CG-CG

4-Chamfer holes of Detail B, C, ground handling section AL-AL and float holes section AJ-AJ per dwg D4168 (welding instructions on sheet 8)

5-Debur and blow out all chips from inside of tube

6- Prepare tube for welding, remove alodine as required.

7-Bond web D2739 in place as per QSI 015

A/R Sikaflex-291 batch: 120813

exp. date: 2012-08-13

8- Weld spacers D3490-1, D3490-3 and D2743 as per dwg D4168 and D4170-1 & QSI004

(welding instructions on sheet 8)

A/R Aluminum Rod batch: m120164

9- At section AJ-AJ drill out x-bolt spacer to 0.404"

12-3-15

SAD 12-03-15

388 12/03/16

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W/O:		WORK ORDER CHANGES					
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12.03.22	160	<p>Ø 0.464 HOLES ARE UP TO Ø 0.416.</p> <p>Ø 0.313 holes are UP to Ø 0.323</p>	<p>CP</p> <p>12.03.22</p> <p>CP1042</p>	Acceptable			<p>CP</p> <p>12.03.22</p> <p>CP1042</p>	

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Date:

Tooling:

Date:

Run Start ***NR1***

QC:

Date:

SPC (Y/N):

Date:

Stop ***NR2***Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

/ 10-Grind welds flush as per Dwg D4168

/ 11-Spot face ground handling holes section (total of 4 places per side) as per
dwg D4168, section AL-AL

/ 12- C'bore section CG-CG

13- Deburr holes

***** FOR DELUXE SKIDTUBE IF APPLICABLE DRILL TOW RING
HOLE IN TUBE *****

170

QC10- Inspect visual per QSI004- ground welds 0.00

170

QC

Memo

0.00

Quality Control

→ CF 12-3-19

→ DP 12-3-20

→ DP 12-3-15

Pl 12-03-20

1x φ

Dart Aerospace Ltd

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Tooling:

Date:

Run Start *NR1*

QC:

Date:

SPC (Y/N):

Date:

Stop *NR2*

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

180

QC5- Inspect part completeness to step on W/O

0.00

180

QC

Memo

0.00

Quality Control

Q 12.13.22

1 β

190

Pressure Wash per QSI005 4.3

0.00

190

HandFinish

Memo

0.00

Hand Finishing

Re-alodine tube as per QSI 005 section 4.1.2.1 do not acid etch.

Handwritten: 12/03/26

200

White Gloss(Ref:4.3.5.1) per QSI005 4.3-Alum

0.00

200

Powdercoat

Memo

0.00

Powder Coating

START TIME: 8h25
OVEN TEMPERATURE: 320°F
FINISH TIME: 8h55

Handwritten: M120222

Handwritten: 1 Q (2P) 12/03/29.

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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Date:

Tooling:

Date:

Run Start ***NR1***

QC:

Date:

SPC (Y/N):

Date:

Stop ***NR2***Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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210

QC3- Inspect Part Finish

0.00

210

QC

Quality Control

Memo

Inspect for foreign object per QSI 024

0.00

Inte f M n/04/11

220

HandFinishing

0.00

220

HandFinish

Hand Finishing

Memo

1- Install inserts as per Dwg D4168

0.00

M n/04/11

W/O:		WORK ORDER CHANGES					
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QC:

Date:

SPC (Y/N):

Date:

Stop *NR2*

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

230

230

HandFinish

Hand Finishing

HandFinishing

0.00

0.00

Memo

1-Inspect for Foreign Objects

2-Spray inside of tube with "LPS-3" batch: NIA

3-Install blade fitting D3488-041, wearshoes and ground handling hardware as per dwg D4168

SIKA FLEX 241

BATCH: 11120318

EXP DATE: 12108

4-assemble o'ring to plug as per dwg D3492 and apply o'ring lube

A/R 55-o'ring lube batch: 11110348

5-Coat all exposed fasteners with "LPS Procyon" batch: 11114596

240

240

QC

Quality Control

QC5- Inspect part completeness to step on W/O

0.00

Memo

0.00

S. Zlobin

(40)

W/O:		WORK ORDER CHANGES					
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Run Start *NR1*

QC:

Date:

SPC (Y/N):

Date:

Stop *NR2*

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID Tool # Plan
Code Accept Reject Reject Insp.
Qty Qty Number Stamp

250

Pick Kit

0.00

250


Packaging

Memo

0.00

Packaging

If making a D350-636-215
pick kit will only requires:
1 X AN3C37A
1 X AN3C34A
1 X AN3C42A
2 X D3493-1

4/24/17 (1) 

260

QC4- 100% Inspect kits for completeness

0.00

260

QC

Memo

0.00

Quality Control

*****ensure antiseize is on AN8C21A bolts*****

5/26/17



270

Packaging

0.00

270

Packaging

Memo

0.00

Packaging

Identify and pack for shipping as per PPPD350-636-015
Location: _____
PPP rev: _____

PPP 82512

1X \$

12-04/17

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
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DescriptionSet Up/
Run Hours

Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
---------	--------	-----------	------------	------------	---------------	-------------

280

QC21- Final Inspection - Work Order Release

0.00

280

QC

Memo

0.00

Quality Control

12/4/19

02-04-19

W/O:		WORK ORDER CHANGES					
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Picklist Print

Thursday, February 23, 2012 3:03:21 PM

Page 1

Work Order ID: 80609

Parent Item: D350-636-015

Parent Item Name: Skidtube STD w/ Training Wearplates, LH

Start Date: 2/24/2012

Required Date: 3/14/2012

Start Qty: 1.00

Required Qty: 1.00

Comments: IPP rev:A 10.09.28 new issue DD verf:EC
DD verf:EC IPP Rev:C 11.10.18 as per NCR 11-906 DD verf:EC
IPP Rev:B 11.04.14 ecn11-553

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
AN3C34A BOLT		Purchased	No			230	Each	52.0000	1	1			

Location Loc Qty Loc Code

ST353 52
116075 32
117514 20

AN3C36A BOLT		Purchased	No			230	Each	161.0000	4	4			
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Location Loc Qty Loc Code

FG 4
101261 4
ST353 157
116590 0
119083 2
119324 92
119530 1
120446 22
120641 40

AN3C37A BOLT		Purchased	No			230	Each	224.0000	1	1			
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Location Loc Qty Loc Code

ST354 224
116874 11
117010 2
118709 50
119324 25
119531 11
120308 25
120422 50
120731 50

116075

1121013 (x 4) ul nloak

1124120

120422

Dart Aerospace Ltd

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Start Qty: 1.00

Required Qty: 1.00

AN3C42A Purchased No

230 Each 53.0000 1 1

BOLT

Location	Loc Qty	Loc Code
ST354	53	
106176	1	
118131	2	
119673	25	
120464	25	

119673

D3492-1 Manufactured No

230 Each 138.0000 8 8

Plug

Location	Loc Qty	Loc Code
FP002	138	
69531	8	
74444	2	
76235	28	
77037	100	

88

12/04/12

D3492-3 Manufactured No

230 Each 77.0000 8 8

Plug

Location	Loc Qty	Loc Code
FP002	1	
77039	1	
FP-A	76	
78600	76	

88

1381967 (x8) 12/04/12

D3873-1 Manufactured No

230 Each 241.0000 7 7

Bushing

Location	Loc Qty	Loc Code
ST067	241	
64760	1	
68247	4	
73829	19	
73830	2	
79560	215	

77

1379561 (x7) 12/04/12

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Page 2

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

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Page 3

Work Order ID: 80609

Parent Item: D350-636-015

Parent Item Name: Skidtube STD w/ Training Wearplates, LH

Start Date: 2/24/2012

Required Date: 3/14/2012

Start Qty: 1.00

Required Qty: 1.00

D4154-041 Manufactured No
Wearplate Assembly

230 Each 3.0000

1 380729 (x1) HL 12/04/12

Location Loc Qty Loc Code

FP001 3
77007 3

D4170-1 Manufactured No
Bushing

230 Each 21.0000

4 4

8812/03/16

Location Loc Qty Loc Code

LG001 21
71844 5
76677 16

D4171-1 Manufactured No
Bushing

230 Each 11.0000

1 1

HL 12/04/12

Location Loc Qty Loc Code

ST135 11
77008 11

MS21043-3 Purchased No
Nut

230 Each 1,273.0000

4 4

12/04/12 HL

Location Loc Qty Loc Code

FG 72
103691 72
GA 400
120693 400
ST300 308
119901 308
ST301 493
118077 2
118614 441
118686 30
119758 20

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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

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Work Order ID: 80609

Parent Item: D350-636-015

Parent Item Name: Skidtube STD w/ Training Wearplates, LH

Start Date: 2/24/2012

Required Date: 3/14/2012

Start Qty: 1.00

Required Qty: 1.00

NAS1149C0363R

Washer

Purchased No

230 Each 3.520.0000 8

Handwritten: 8 7 12/04/12

Location

Loc Qty

Loc Code

ST297

3520

3520

114742

NAS1149D0863J

WASHER

Purchased No

250 Each 231.0000 2

Handwritten: 2 12/04/12

Location

Loc Qty

Loc Code

ST298

231

118078

36

119307

95

120308

100

Handwritten: X2

NAS1515H3L

WASHER

Purchased No

230 Each 220.0000 4

Handwritten: 4 12/04/12

Location

Loc Qty

Loc Code

FG

40

102472

40

ST277

180

118686

3

119438

1

120072

76

120360

100

Handwritten: X1

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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

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Page 5

Work Order ID: 80609

Parent Item: D350-636-015

Parent Item Name: Skidtube STD w/ Training Wearplates, LH

Start Date: 2/24/2012

Required Date: 3/14/2012

Start Qty: 1.00

Required Qty: 1.00

NAS1611-010 Purchased No

230 Each 167.0000 8 8
all 12/04/12

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
FP	50	
110915	0	
120770	50	
FP001	117	<i>XB</i>
110915	14	
117460	8	
118077	1	
118612	3	
119438	47	
120308	44	

NAS1611-013 Purchased No

230 Each 126.0000 8 8
all 12/04/12

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
FP001	126	
116582	5	
117291	2	
117887	53	
119623	36	
120360	30	

D2744 Manufactured No

110 Each 62.0000 1 1

<u>Location</u>	<u>Loc Qty</u>	<u>Loc Code</u>
LG002	62	
62715	1	
70881	12	
71861	7	
78900	42	

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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

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Page 6

Work Order ID: 80609

Parent Item: D350-636-015

Parent Item Name: Skidtube STD w/ Training Wearplates, LH

Start Date: 2/24/2012

Required Date: 3/14/2012

Start Qty: 1.00

Required Qty: 1.00

D2600-3-BENT

Manufactured No

110 Each 17.0000

Extrusion Bent

1 1 1 ~~BB~~ 12/03/10

Location

Loc Qty

Loc Code

LG 17
66875 7
73253 1
75021 1
75022 1
75023 1
77623 1
79497 5

D2743

Manufactured No

160 Each 164.0000

Crossbolt Spacer

8 8

BE 12/03/10

Location

Loc Qty

Loc Code

LG001 164
67766 4
68251 3
73403 64
74445 1
78603 92

D2739

Manufactured No

160 Each 1.0000

350 I Beam

1 1 1 SAG 12-03-15

Location

Loc Qty

Loc Code

LG 1
72155 1

D3490-3

Manufactured No

160 Each 46.0000

Cross Bolt Spacer

B80083

4 1 4

BB 12/03/10

Location

Loc Qty

Loc Code

LG001 46
77567 6
78800 40

4 4

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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

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			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

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Work Order ID: 80609

Parent Item: D350-636-015

Parent Item Name: Skidtube STD w/ Training Wearplates, LH

Start Date: 2/24/2012

Required Date: 3/14/2012

Start Qty: 1.00

Required Qty: 1.00

D3490-1 Manufactured No
Cross Bolt Spacer

160 Each 57.0000 4 4

BE 12/23/12

Location

Loc Qty

Loc Code

LG001

57

62450

2

74875

4

77042

8

78793

43

ALS4-1032-225

Purchased No

230 Each 1,286.0000

4 4

u 12/04/12

Insert

Location

Loc Qty

Loc Code

ST281

1031

108696

146

110768

62

118386

55

118966

68

120671

700

ST282

255

120410

150

120451

105

AN8C35A

Purchased No

230 Each 66.0000

1 1

u 12/04/12

BOLT

Location

Loc Qty

Loc Code

FP002

65

115960

1

117834

10

118286

54

ST346

1

114442

0

115188

0

115960

1

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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

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Page 8

Work Order ID: 80609

Parent Item: D350-636-015

Parent Item Name: Skidtube STD w/ Training Wearplates, LH

Start Date: 2/24/2012

Required Date: 3/14/2012

Start Qty: 1.00

Required Qty: 1.00

D3488-041 Manufactured No
Blade Fitting Assembly, LH

230 Each 17.0000

1 1
M 12/01/12

Location	Loc Qty	Loc Code
FP002	17	
61689	1	
75056	7	
77021	9	

AN6C44A Purchased No
BOLT

230 Each 98.0000

4 4
M 12/01/12

Location	Loc Qty	Loc Code
FG	2	
103964	2	
ST343	96	
120095	16	
120143	25	
120465	27	
120641	28	

MS21083C8 Purchased No
NUT

230 Each 67.0000

1 1
M 12/01/12

Location	Loc Qty	Loc Code
FP002	1	
115884	1	
ST303	15	
115884	0	
118077	1	
119309	2	
119436	10	
119638	2	
ST304	51	
120142	26	
120731	25	

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Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____
 Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

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Work Order ID: 80609

Parent Item: D350-636-015

Start Date: 2/24/2012

Required Date: 3/14/2012

Parent Item Name: Skidtube STD w/ Training Wearplates, LH

Start Qty: 1.00

Required Qty: 1.00

D3631-1 Manufactured No
Washer

230 Each 223.0000

8 *ml* 12/04/12

Location	Loc Qty	Loc Code
ST072	223	
68062	2	
75548	221	

AN960C10L NAS1149C0332R *X* Purchased No
washer

230 Each 0.0000

4 *ml* 12/25/12 *481 ml 12/04/12*

D2745 Manufactured No
Bushing

230 Each 48.0000

8 *ml* 12/04/12 *1379518 481 ml 12/04/12*

Location	Loc Qty	Loc Code
FP001	48	
69529	1	
76142	1	
78597	46	

NAS1149C0832R Purchased No
WASHER

230 Each 305.0000

1 *ml* 12/04/12

Location	Loc Qty	Loc Code
ST297	305	
114915	305	

VC

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

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Page 10

Work Order ID: 80609

Parent Item: D350-636-015

Parent Item Name: Skidtube STD w/ Training Wearplates, LH

Start Date: 2/24/2012

Required Date: 3/14/2012

Start Qty: 1.00

Required Qty: 1.00

AN3C6A Purchased No

230 Each 692.0000

4 4 12/04/12

BOLT

Location	Loc Qty	Loc Code
FP001	1	
111982	1	
ST351	691	
111982	2	
116419	23	
116549	2	
116704	12	
117619	10	
117688	1	
117872	5	
118422	13	
119449	21	
120423	202	
120693	400	

MS21043-6 Purchased No

230 Each 817.0000

4 4 12/04/12

NUT

Location	Loc Qty	Loc Code
FG	20	
103693	20	
ST301	797	
112314	87	
117887	10	
118384	200	
120308	500	

D3493-1 Manufactured No

250 Each 26.0000

2 2

Washer

Location	Loc Qty	Loc Code
ST050	26	
70697	2	
77573	24	

6/14/12

77573

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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

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Work Order ID: 80609

Parent Item: D350-636-015

Parent Item Name: Skidtube STD w/ Training Wearplates. LH

Start Date: 2/24/2012

Required Date: 3/14/2012

Start Qty: 1.00

Required Qty: 1.00

MS21083C8

Purchased

No

250

Each

67.0000

2

M 2

12/04/12

NUT

Location

Loc Qty

Loc Code

FP002

1

115884

1

ST303

15

115884

0

118077

1

119309

2

119436

10

119638

2

ST304

51

120142

26

120731

25

XZ

AN8C21A

Purchased

No

250

Each

47.0000

2

M 2

12/04/12

BOLT

Location

Loc Qty

Loc Code

ST343

47

118758

5

120094

42

XZ

D2741

Manufactured

No

250

Each

38.0000

1

M 1

12/04/12

Blade, 350 Skidtube

Location

Loc Qty

Loc Code

ST

-10

ST466

48

71856

1

76984

37

XI

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

QTY -041	QTY -042	QTY -043	QTY -044	PART NUMBER	DESCRIPTION
X				D4168-041	350 SKIDTUBE ASSEMBLY, LH
	X			D4168-042	350 SKIDTUBE ASSEMBLY, RH
		X		D4168-043	350 SKIDTUBE ASSEMBLY, LH
			X	D4168-044	350 SKIDTUBE ASSEMBLY, RH
1	1	1	1	D2739	WEB
8	8	8	8	D2743	SPACER
1	1	1	1	D2744	CAP
8	8	8	8	D2745	BUSHING
1		1		D3488-041	BLADE FITTING, LH
	1		1	D3488-042	BLADE FITTING, RH
4	4	4	4	D3490-1	SPACER
4	4			D3490-3	SPACER
		4	4	D3490-5	SPACER
8	8	8	8	D3492-041	PLUG ASSEMBLY
8	8			D3492-043	PLUG ASSEMBLY
		8	8	D3492-045	PLUG ASSEMBLY
8	8	8	8	D3631-1	WASHER
7	7	7	7	D3873-1	BUSHING
1	1	1	1	D4154-041	WEARPLATE ASSEMBLY
1				D4168-1	SKIDTUBE WELDMENT, LH
	1			D4168-2	SKIDTUBE WELDMENT, RH
		1		D4168-3	SKIDTUBE WELDMENT, LH
			1	D4168-4	SKIDTUBE WELDMENT, RH
4	4	4	4	D4170-1	SPACER
1	1	1	1	D4171-1	BUSHING
4	4	4	4	ALS4-1032-225	INSERT
4	4	4	4	AN3C6A	BOLT
1	1	1	1	AN3C34A	BOLT
4	4	4	4	AN3C36A	BOLT
4	4	4	4	AN6C44A	BOLT
1	1	1	1	AN8C35A	BOLT
9	9	9	9	AN960C10	WASHER (OR NAS1149CO363R)
4	4	4	4	AN960C10L	WASHER (OR NAS1149CO332R)
1	1	1	1	AN960C816L	WASHER (OR NAS1149CO832R)
5	5	5	5	MS21043-3	NUT
4	4	4	4	MS21043-6	NUT
1	1	1	1	MS21083C8	NUT
4	4	4	4	NAS1515H3L	WASHER

GENERAL NOTES:

- 1) MATERIAL: MAKE D4168-1/-2/-3/-4 FROM D2600-3 EXTRUSION (INITIAL LENGTH = 120.0).
- 2) FINISH:
 - CHEMICAL CONVERSION COAT PER DART QSI 005 4.1 PRIOR TO INSTALLING D2739 WEB.
 - POWDER COAT WHITE (REF. 4.3.5.1) PER DART QSI 005 4.3
 - BLACK ANTI-SKID PAINT AS INDICATED TO 1.0 ABOVE SKIDTUBE CENTER-LINE PER DART 005 4.4 (OPTIONAL).
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: N/A
- 6) IDENTIFICATION: N/A
- 7) WEIGHT: D4168-041/-042/-043/-044 = 32.3 LBS
- 8) WELD PER DART QSI 004
- 9) FINAL CONFIGURATION SHOULD HAVE THE FOLLOWING MINIMUM MECHANICAL PROPERTIES:
 - MINIMUM YIELD TENSILE STRENGTH = 35 KSI
 - MINIMUM ULTIMATE TENSILE STRENGTH = 38 KSI
- 10) COAT ALL EXPOSED FASTENERS WITH LPS LABORATORIES "LPS PROCYON" AFTER FINAL ASSEMBLY, CLEAN EXCESS OFF
- 11) POWDER COATING WITH MEK DEGREASER
- 12) SPACER AND PLUG INSTALLED SAME AS SECTION AJ-AJ EXCEPT HORIZONTAL
- 13) SPACER AND PLUG INSTALLED SAME AS SECTION AP-AP EXCEPT HORIZONTAL

80609

RELEASED
2010-09-15

A		NEW ISSUE		SC	10.08.09
REV.		DESCRIPTION	BY	DATE	
DESIGN	SC	DART AEROSPACE USA, INC.			
DRAWN	SC	PORT HADLOCK, WA			
CHECKED		DRAWING NO.	REV. A		
MFG. APPR.		D4168	SHEET 1 OF 11		
APPROVED		TITLE	SCALE		
DE APPR.		350 SKIDTUBE ASSEMBLY	NTS		
DATE	10.08.09	<small>COPYRIGHT © 2010 BY DART AEROSPACE USA, INC. THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR REPRODUCED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.</small>			

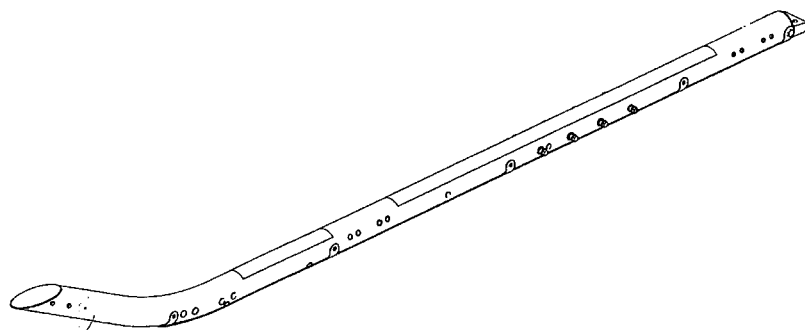
W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

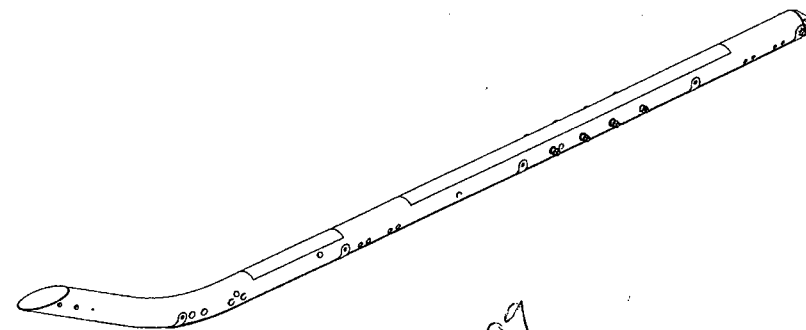
Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



D4168-041 350 SKIDTUBE ASSEMBLY, LH



D4168-042 350 SKIDTUBE ASSEMBLY, RH

80609

RELEASED
2010-09-15
JW

DESIGN	SC	DART AEROSPACE USA, INC.	
DRAWN	SC	PORT HADLOCK, WA	
CHECKED	<i>[Signature]</i>	DRAWING NO.	REV. A
MFG. APPR.	<i>[Signature]</i>	D4168	SHEET 2 OF 11
APPROVED	<i>[Signature]</i>	TITLE	SCALE
DE APPR.	<i>[Signature]</i>	350 SKIDTUBE ASSEMBLY	NTS
DATE	10.08.09	<small>COPYRIGHT © 2010 BY DART AEROSPACE USA, INC. THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR DISSEMINATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE USA, INC.</small>	

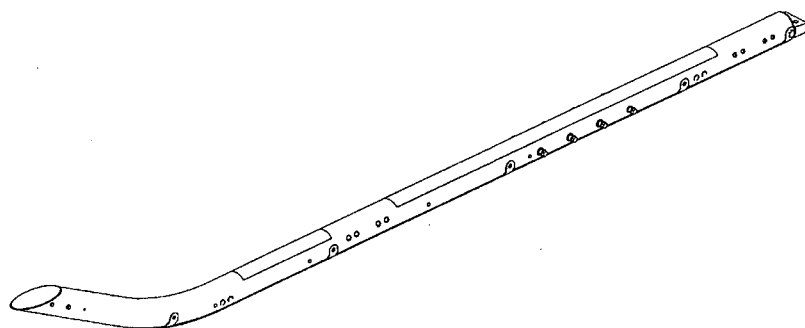
W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

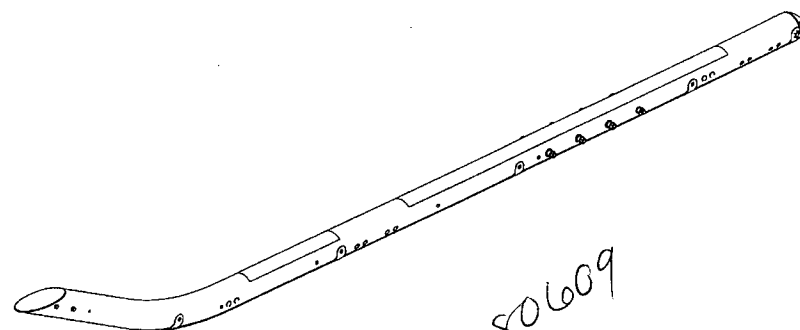
Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



D4168-043 350 SKIDTUBE ASSEMBLY, LH



D4168-044 350 SKIDTUBE ASSEMBLY, RH

#80609

RELEASED
2010-09-15

DESIGN	SC	DART AEROSPACE USA, INC.	
DRAWN	SC	PORT HADLOCK, WA	
CHECKED		DRAWING NO.	REV. A
MFG. APPR.		D4168	SHEET 3 OF 11
APPROVED		TITLE	SCALE
DE APPR.		350 SKIDTUBE ASSEMBLY	NTS
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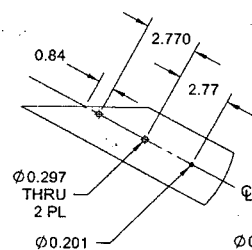
W/O:		WORK ORDER CHANGES					
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Technical drawing of a shaft with the following dimensions and tolerances:

- Overall diameter: $\varnothing 0.750^{+0.010}_{-0.000}$
- Overall length: 3.940
- Distance from left end to first hole: 1.770
- Distance between first and second hole: 1.770
- Distance between second and third hole: 1.770
- Distance from right end to last hole: 1.770
- Feature: THRU 4 PL (4 holes through the shaft)

Diagram of a four-roller mill. The top view shows a cylindrical mill with four rollers. The distance between the centers of the two outer rollers is 3.150. The distance from the center of each outer roller to the center of the inner roller is 1.180. The distance between the centers of the two inner rollers is labeled H. The side view shows the mill with a diameter of 42.4. The distance between the centers of the two inner rollers is labeled H.

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Technical drawing of a circular part. The drawing shows a cross-section of a circular component with a 23.5 degree angle. A hole is indicated with the dimension $\varnothing 0.500^{+0.010}_{-0.000}$ and the word "THRU".

Technical drawing of a part with a hole. The hole diameter is specified as $\varnothing 0.625$ with a tolerance of $+0.010$ to -0.000 . The hole is labeled "THRU". A dimension of 17° is shown for the angle of the hole's axis relative to the horizontal centerline.

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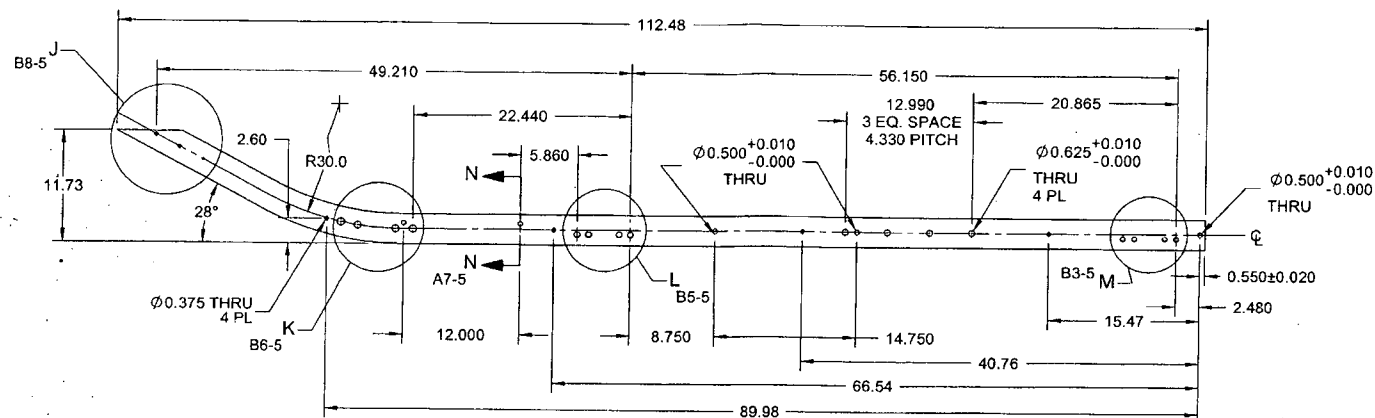
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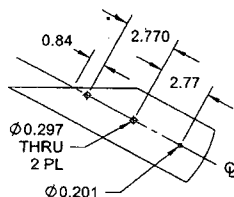
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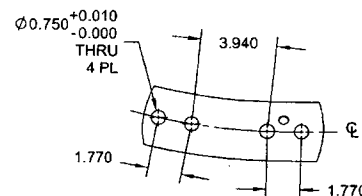
NOTE: Date & initial all entries



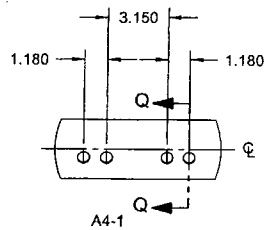
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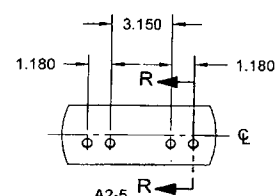
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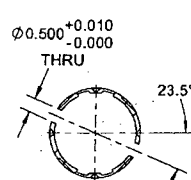
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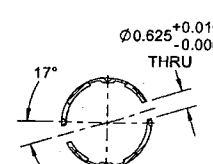
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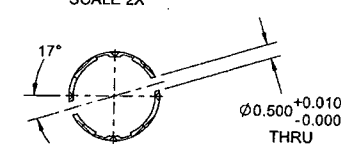
DETAIL M
SCALE 2X



SECTION N-N
SCALE 3X, 2 PL



SECTION Q-Q
SCALE 3X, 4 PL



SECTION R-R
SCALE 3X, 4 PL

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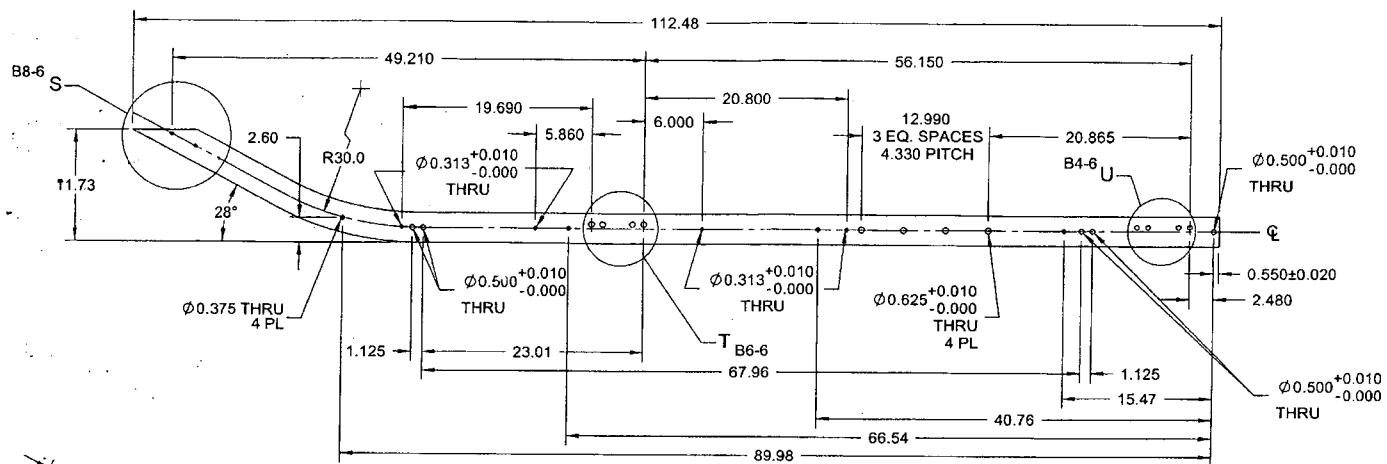
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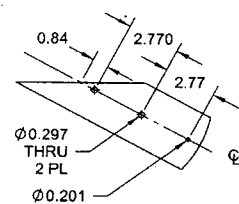
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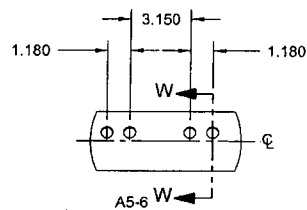
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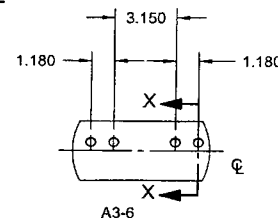
D4168-3 LH SKIDTUBE



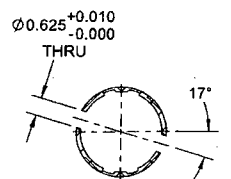
DETAIL S
SCALE 2X



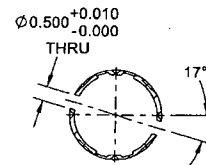
DETAIL T
SCALE 2X



DETAIL U
SCALE 2X







SECTION W-W
SCALE 3X, 4 PL



SECTION X-X
SCALE 3X, 4 PL

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8 7 6 5 4 3 2 1

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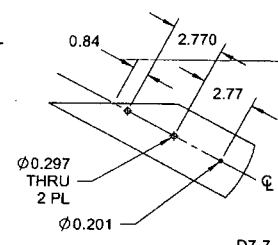
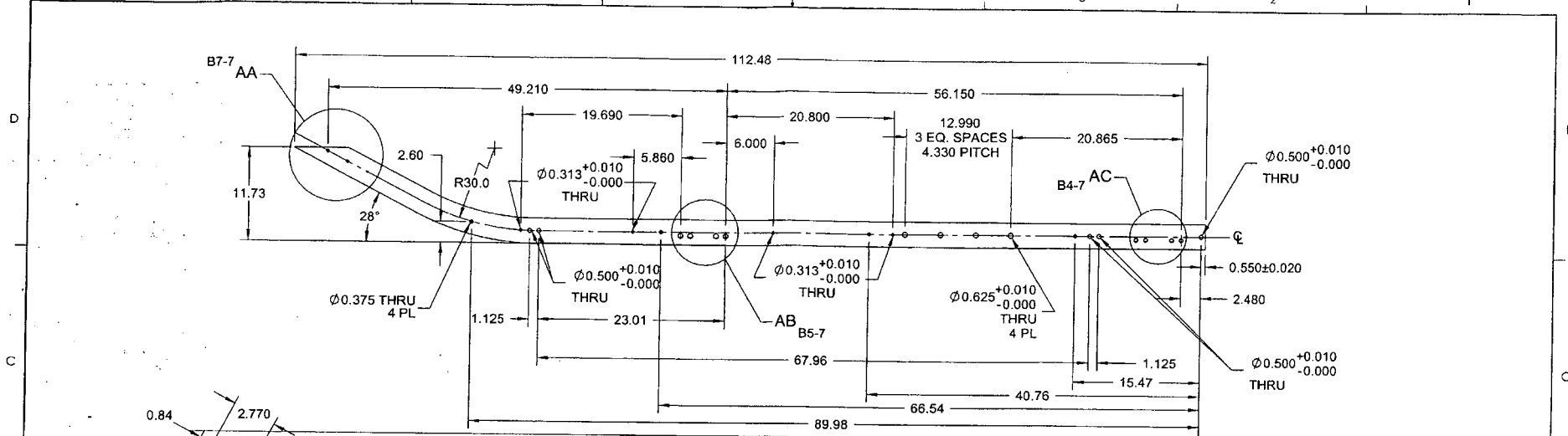
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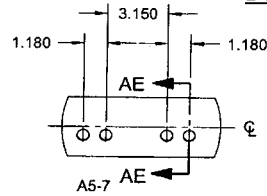
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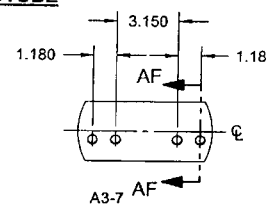
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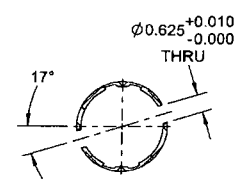
DETAIL AA
SCALE 2X



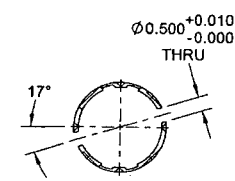
DETAIL AB
SCALE 2X



DETAIL AC
SCALE 2X



SECTION AE-AE
SCALE 3X, 4 PL



SECTION AF-AF
SCALE 3X, 4 PL

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8 7 6 5 4 3 2 1

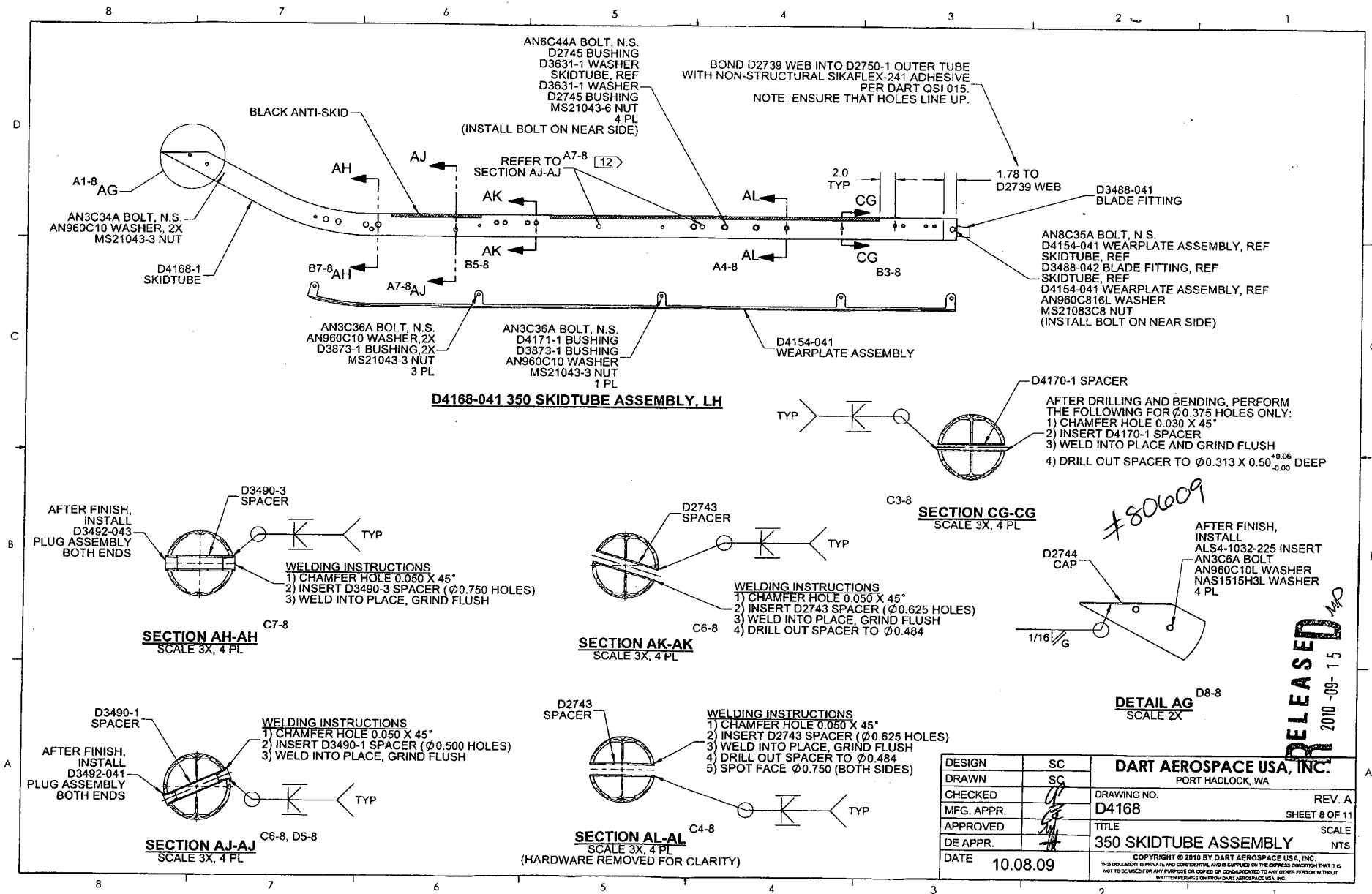
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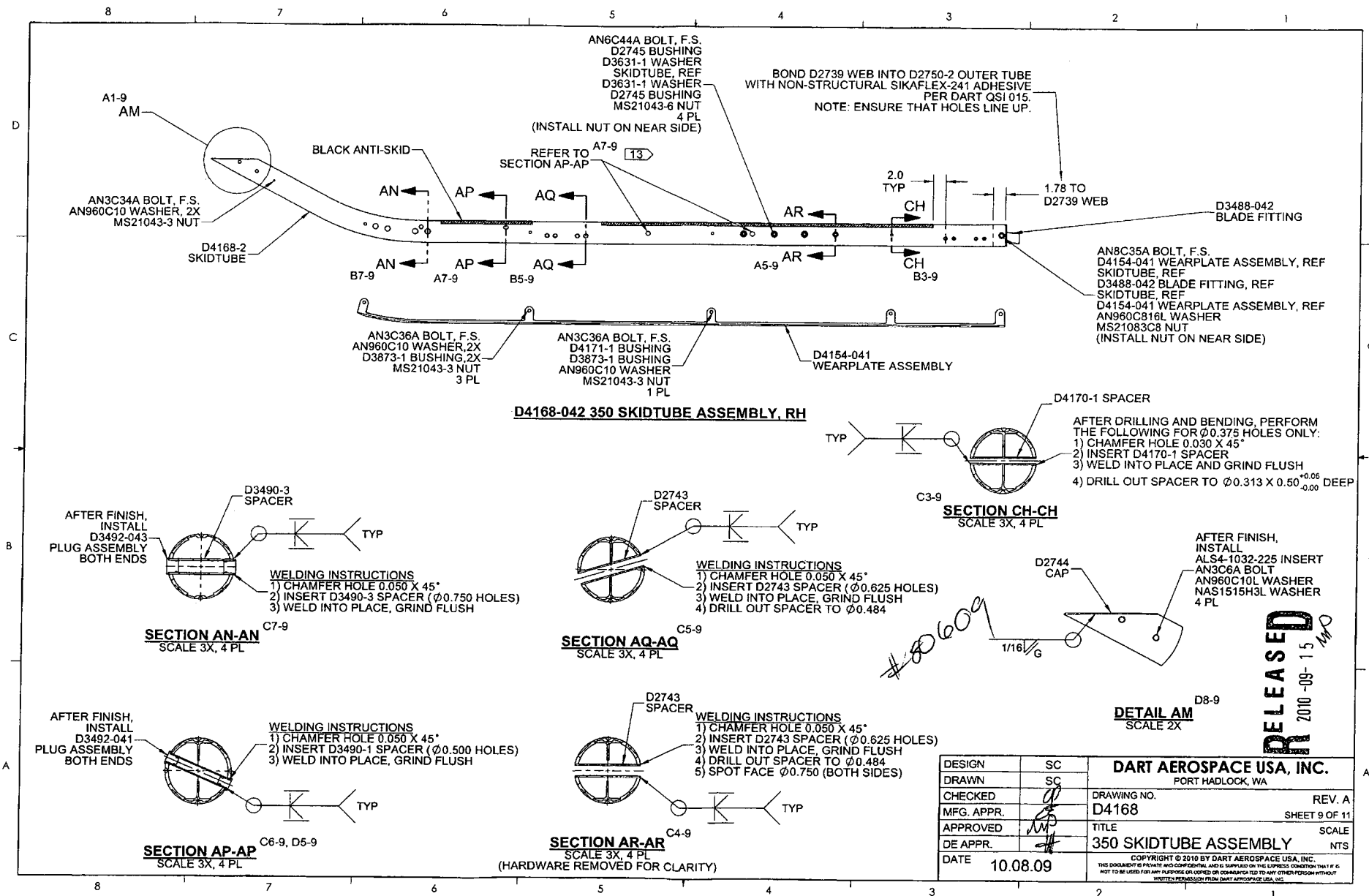
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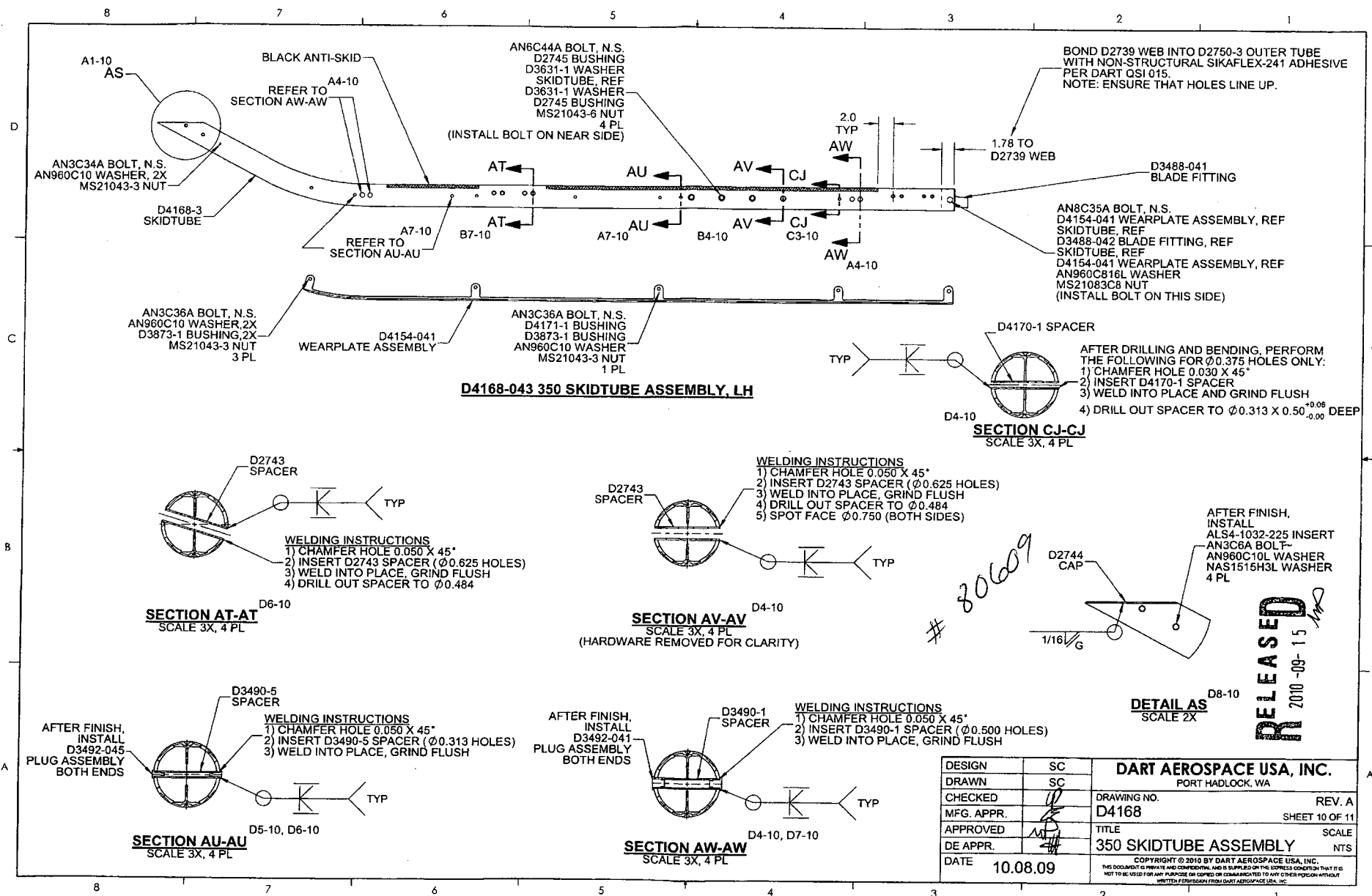
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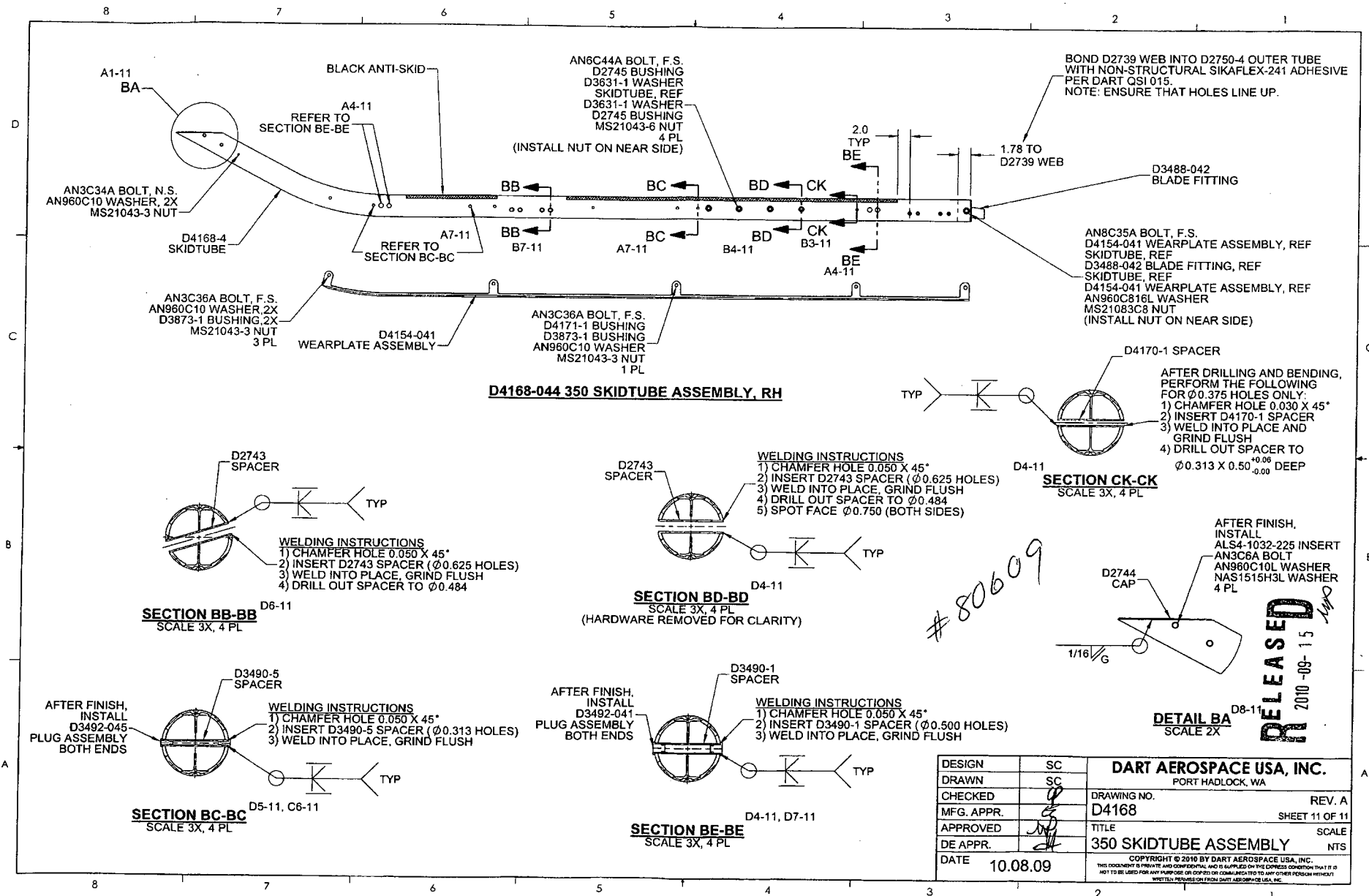
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